



Non-inverting op-amp level shifter (cộng không đảo)

$$V_{out} = [(OUT\_Filter * R11) + (1.65 * R10)] / (R10 + R11)$$

$$Gain = 1 + (R12 / R13)$$

$$ADC\_OUT = V_{out} * Gain$$

$$Ex: -3.3v \rightarrow 0v \rightarrow ADC\_OUT = [(-3.3 * 1K) + (1.65 * 2K)] / (3K) * [1 + (500 / 1K)] = 0v$$

$$0v \rightarrow 1.65v \rightarrow ADC\_OUT = [(0 * 1K) + (1.65 * 2K)] / (3K) * [1 + (500 / 1K)] = 1.65v$$

$$+3.3v \rightarrow 3.3v \rightarrow ADC\_OUT = [(+3.3 * 1K) + (1.65 * 2K)] / (3K) * [1 + (500 / 1K)] = 3.3v$$

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